Silica Exposure of Metal and Nonmetal Miners

Health Hazard Information Card

U.S. Department of Labor
Mine Safety and Health Administration
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What is silica?

Silica is the second most common mineral in the earths crust and is a major component of sand, rock, and mineral ores. Respirable crystalline sil-ica particles are so tiny they can lodge deep in the lungs when inhaled. There are three forms of crystalline silica quartz (the most common), cristo-balite, and tridymite.

Where are miners exposed to silica dust?

Nearly all metal and nonmetal miners may be exposed to silica dust. Jobs with the greatest risk of overexposure are:

- **Underground mining:** loader operator, crusher operator, driller
- **Surface mining:** driller, cleanup worker, laborer, bagger, crusher operator
- **Milling:** bagger and packer, laborer, cleanup worker

What is silicosis?

Silicosis is a disabling, nonreversible, and sometimes fatal lung disease caused by overexposure to respirable crystalline silica. Overexposure to dust that contains microscopic particles of crystalline silica can cause scar tissue to form in the lungs, makiug it harder to breathe. Even if overexposure stops, Silicosis can continue to develop.

There is no cure for silicosis; prevention is the only answer.

What are the symptoms of silicosis?

Early stages often go undetected. As silicosis progresses, the miner may experience shortness of breath, severe cough, fatigue, loss of appetite, chest pains, and fever. Silicosis can also result in death. Acute silicosis can develop after short periods of intense overexposure. Chronic silicosis usually occurs over 10 or more years of overexposure.

What does MSHA require to protect miners?

MSHA requires that respirable silica in metal and nonmetal mines be kept at or below MSHA's exposure limits. A specfic rule protects drillers from overexposure: holes must be collared and drilled wet or other effective contiols must be used.

How can you limit silica exposures?

Mine operatom must provide and ensure the maintenance and use of appropriate engineering controls to limit dust exposures. Miners should use and maintain all available controls. Respirators are not meant to be the primq control for silica dust, but may be necessary while engineering controls are being installed. The respirator must be approved for dust, correctly used and maintained, cartridges checked or changed every shift, and fitted to give a tight face seal.

How can miners determine if they have silicosis?

It is recommended that miners have a medical evaluation before job placement and at least every three years thereafter. Evaluation should include:

- Work history with information on silica exposures
- Checkup to detect early signs of lung disease
- Chest x-ray Breathing test (pulmonary function)
- Tuberculosis evaluation

Mine operators must report to MSHA cases of silicosis or other occupational lung disease for which a medical diagnosis or notice of an award of compensation is received by a miner or for which a chest x-my reads 1/0 or above.

For more information: Contact your local MSHA office, or the national office: 703-235-8307. *Our job is to protect your health.*